

**Patent Application  
Attorney Docket No. D/99168QD**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor(s): Robert D. Russell

Application No.:

Filed:

Parent Application No.: 09/293,098

Parent Filed: April 16, 1999

Parent Examiner: A. Dunwoody

Parent Art Unit: 3629

Title: PLASTIC SHAFTS WITH MOLDED CORE  
AND EXTERNAL FEATURE

Commissioner for Patents  
Washington, D.C. 20231

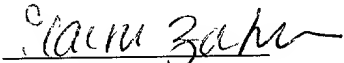
Sir:

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being transmitted with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Commissioner for Patents, Washington, D.C. 20231, on

February 9, 2001

Elaine Zahn

  
(Signature)

February 9, 2001

Date of Signature

**PRELIMINARY AMENDMENT**

**IN THE CLAIMS:**

Please cancel claims 1-20.

21. (Amended) A process for making a [rotatable] shaft assembly [for transmitting torsional torque having at least one functional feature on an outside surface of said shaft, the process] comprising [the steps of]:

gas injection molding an elongated member having at least a portion which is hollow having an inside surface defining a shaft core and an outside surface defining a shaft functional surface;

providing the elongated member with an aperture gate extending from the inside surface to the outside surface;

placing the hollow portion in a mold which has a cavity for the at least one functional feature on the outside surface of said portion;

filling the mold with a hardenable, moldable material, flowing the moldable material through the shaft core and [cavity] aperture gate;

permitting the moldable material to harden to form [the] a functional feature; and

removing the shaft assembly with the functional feature from the mold.

Please add the following claims:

--22. A process for making a shaft assembly comprising:

injection molding an elongated member using a gas, the elongated member having hollow portion defining a shaft core, inside surface, and an outside surface defining a shaft functional surface;

forming at least one aperture in the elongated member extending from the inside surface to the outside surface;

filling the hollow portion with a moldable material such that the moldable material flows through the shaft core and the at least one aperture; and

coating at least a portion of the shaft assembly with a material adapted to provide a frictional driving surface.

23. A shaft made by the process comprising:

gas injection molding an elongated member having at least a portion which is hollow having an inside surface defining a shaft core and an outside surface defining a shaft functional surface;

forming at least one aperture in the elongated member extending from the inside surface to the outside surface;

placing at least a portion of the shaft in a mold;

filling the mold with a hardenable, moldable material, flowing the moldable material through the shaft core and the at least one aperture;

permitting the moldable material to harden to form a functional feature;

and

removing the shaft from the mold.

24. A process for making a shaft assembly of claim 21 wherein gas injection molding includes forming the elongated member such that the distance from the inside surface to the outside surface along the elongated member is substantially similar.

25. A process of claim 54 wherein injection molding using a gas includes forming the elongated member such that the distance from the inside surface to the outside surface along the elongated member is substantially similar.

26. A shaft of claim 55 wherein gas injection molding includes forming the elongated member such that the distance from the inside surface to the outside surface along the elongated member is substantially similar.--

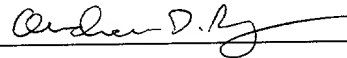
#### **Remarks**

Applicant respectfully request allowance of claims 21-26.

**Conclusion**

In the event the Examiner considers personal contact advantageous to the disposition of this case, the Examiner is authorized to call Applicant's attorney, Andrew D. Ryan, at telephone number (716) 423-4636, Rochester, New York.

Respectfully submitted,



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